

Remarks

The U.S. patent system is supposed to be grounded in Article I, Section 8, Clause 8 of the U.S. Constitution, which states that "The Congress Shall Have Power ... To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries...." As mandated by the Patent Act of 1952, U.S. patent rights do not arise automatically. Inventors must prepare and submit applications to the U.S. Patent and Trademark Office (U.S.P.T.O.) if they wish to obtain patent protection. U.S.P.T.O. employees are then supposed to examine the patent applications in order to determine if the application merits the award of a patent.

A review of the applicable rules, the applicable statutes and key precedents make it clear exactly what tasks are supposed to be completed during a "patent examination". In particular, the Patent Rules (37 C.F.R. § 1.104) state:

On taking up an application for examination or a patent in a reexamination proceeding, the examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention. The examination shall be complete with respect both to compliance of the application or patent under reexamination with the applicable statutes and rules and to the patentability of the invention as claimed, as well as with respect to matters of form, unless otherwise indicated.

In short, a patent application examination consists of:

1. a thorough study of the application,
2. a thorough investigation of the available prior art, and
3. an evaluation as to whether or not the application and the invention as claimed comply with the applicable statutes, rules and form.

Over the years, various court decisions have provided specific guidelines that help further define what is meant by the term patent examination. For example, it is well established that the starting point for any patent application examination is a study of the specification and the claimed invention. As noted in MPEP 2111 (underlines added):

During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." The Federal Circuit's en banc decision in Phillips v. AWH Corp., 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) expressly recognized that the U.S.P.T.O. employs the "broadest reasonable interpretation" standard: The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their

broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d 1359, 1364[, 70 USPQ2d 1827] (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must "conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description." 37 CFR 1.75(d)(1). 415 F.3d at 1316, 75 USPQ2d at 1329 (underline added).

As shown in the table below, the evaluation of the claims in light of the specification as it would be interpreted by one of ordinary skill in the art should be made by someone of average or ordinary skill in the art in order to determine if the application complies with 35 U.S.C. 102, 35 U.S.C. 103 and 35 U.S.C. 112

Code	Applicable citation
35 U.S.C. 102 (underlined words added)	It is well established that in order "to establish inherency <u>under 35 U.S.C. 102</u> , the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 Fed. Cir. 1999
35 U.S.C. 103 (underline added)	Conditions for patentability; non-obvious subject matter. (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, <u>if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.</u> Patentability shall not be negated by the manner in which the invention was made.
35 U.S.C. 112 (underline added)	The specification shall contain a written description of the invention, <u>and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same,</u> and shall set forth the best mode contemplated by the inventor of carrying out his invention.

There are also well established precedents and guidelines for rejecting claims in an application.

For example, the 2010 USPTO KSR Guidelines state that "teaching away" is one of the best ways to traverse an obviousness rejection. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference... would be led in a direction divergent from the path that was taken by the applicant." In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994).

Furthermore, the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR, 550 U.S. at ___, 82 USPQ2d at 1396.

It is also well established that in reviewing compliance with 35 U.S.C. 112, the inquiry into whether the description requirement is met must be determined on a case-by-case basis and is a question of fact. In *re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). A description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., In *re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. *Wertheim*, 541 F.2d at 263, 191 USPQ at 97.

The standard of review applied to findings of fact is the "substantial evidence" standard under the Administrative Procedure Act (APA). See *In re Gartside*, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000). See also MPEP § 1216.01. In light of recent Federal Circuit decisions as discussed below and the substantial evidence standard of review now applied to USPTO Board decisions.

In accordance with 35 U.S.C. 3 the powers and duties of the United States Patent and Trademark Office are vested in an Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office (in this title referred to as the "Director"). The Director is generally responsible for providing policy direction and management supervision for the Office and for the issuance of patents and the registration of trademarks. In accordance with 35 U.S.C. 3 the Director is supposed to perform these duties in a fair, impartial, and equitable manner. Also, under the patent rules (37 C.F.R. 1.56) each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability.

35 U.S.C. § 103 Rejection of Claims

In the papers mailed February 1, 2012, claim 157, claim 158, claim 159, claim 160, claim 161, claim 162, claim 163, claim 165, claim 166, claim 167, claim 169, claim 170, claim 171, claim 172, claim 173, claim 174, claim 175, claim 176, claim 178, claim 179, claim 180, claim 201, claim 202, claim 203, claim 204, claim 205, claim 206, claim 208, claim 209, claim 210, claim 211, claim 212, claim 213, claim 214, claim 216, claim 217, claim 218 and claim 219 are rejected as being unpatentable over Baseman (U.S. 6,671,673) in view of Sandretto (5,812,988) and Tamayo (5,836,773). These three documents have been cited as references. Claims 164, 177, 207 and 215 are rejected on the basis of the same three documents further in view of Packwood (7,006,992) and claims 168 and 181 are rejected on the basis of the same three documents further in view of Ranger (U.S. 6,301,584). The Assignee traverses the §103 rejections in a number of ways. First, by noting that the assertions regarding the alleged obviousness of the claims are not in compliance with the requirements of the Administrative Procedures Act and are therefore moot. In particular, the rejections are arbitrary and capricious as noted by Link, the U.S.P.T.O. has found later filed applications for similar inventions to be patentable. Second, by noting that the cited combination of documents fails to establish a prima facie case of obviousness. In particular, the papers mailed February 1, 2012 fail to establish the prima facie case of obviousness required to sustain the rejections of claim 157, claim 158, claim 159, claim 160, claim 161, claim 162, claim 163, claim 164, claim 165, claim 166, claim 167, claim 168, claim 169, claim 170, claim 171, claim 172, claim 173, claim 174, claim 175, claim 176, claim 177, claim 178, claim 179, claim 180, claim 181, claim 182, claim 201, claim 202, claim 203, claim 204, claim 205, claim 206, claim 207, claim 208, claim 209, claim 210, claim 211, claim 212, claim 213, claim 214, claim 215, claim 216, claim 217, claim 218 and claim 219 by citing a combination of documents that have no relevance to the claims under any reasonable interpretation that could be given to said claims consistent with the specification. More specifically, the cited documents teach away from almost every aspect of the claimed invention. Some of the ways the cited combination of documents teaches away from the claimed invention include:

1) Baseman teaches away from the use of scenario simulations for analyzing tradeoffs and for measuring risk as described in claims 157, 158, 169, 170, 201, 205, 210 and 219. Baseman teaches away by teaching the use of the objective function of constrained mathematical models to model tradeoffs between risk and profit (or value) during the design of a new supply chain (see Baseman, C8, L10). The supply chain designs are then stress tested using scenario simulation (see Baseman, C8, L21). Baseman also teaches away from the use of scenario

simulations to measure risk by claiming the use of portfolio management (see Baseman claim 1) which implicitly teaches variance relative to the market is the measure of risk. In short, Baseman teaches that scenario simulations are used to test the robustness of completed designs and have no role in measuring risk. By way of contrast, the instant application teaches that scenario simulations are used to measure risk and are used as inputs to analyses that identify the optimal tradeoff between value and risk. Put another way, a person of ordinary skill in the art reading Baseman would be led develop a supply chain design using a general analysis before stress testing the resulting design using scenarios to gauge robustness.

2) Baseman teaches away from the analysis and optimization of real option value and contingent liabilities described in claims: 157, 163, 165, 167, 168, 169, 171, 175, 176, 178, 180, 203, 204, 208, 211, 214 and 217. The only constrained mathematical models Baseman discusses using are linear programs and mixed integer programs (the combination is mentioned 21 times). As is well known in the art, the objective functions of linear and mixed integer programs are limited to analyzing and optimizing exact values that change in a linear manner. As is also well known in the art, real options and contingent liabilities generally change in a nonlinear, exponential fashion. As correctly noted by the BPAI, Baseman does mention real options. However, Baseman only mentions real options to note that others are studying them. Baseman also teaches away from the analysis and optimization of contingent liabilities by claiming the use of portfolio management which implicitly teaches mean variance optimization. As is well known in the art mean variance optimization does not consider contingent liabilities and/or real options. Put another way, a person of ordinary skill in the art who followed the teachings of Baseman would limit any optimization analysis to measures that can be modeled using a linear function or a mean variance optimization analysis.

3) Baseman teaches away from the analysis and optimization of non linear categories of value and non linear risks described in claims: 157, 163, 165, 167, 168, 169, 171, 175, 176, 178, 180, 201, 203, 204, 208, 211, 214 and 217. The specification of the instant application details the fact that the value of the current operation and market sentiment categories of value may also be nonlinear (the real option category of value is nonlinear as discussed under 2) above). For the same reasons discussed under 2) above, the cited portion of Baseman could not support the optimization of changes (such as a change caused by a risk management activity) to a category of value when the changes in value for these categories of value are nonlinear. Put another way, a person of ordinary skill in the art who followed the teachings of Baseman would limit the optimization analysis to measures that can be modeled using a linear function.

4) Baseman teaches away from the analysis and optimization event risks described in claims 167, 204 and 214. As is well known in the art, event risks often cause nonlinear changes in expected value and the cited portion of the Baseman specification could not support the optimization of these types of risks for the same reasons discussed under 2) and 3) above. Put another way, a person of ordinary skill in the art who followed the teachings of Baseman would limit the optimization analysis to risks that can be modeled using a linear function.

5) Baseman teaches away from scenario optimization as described in claims 157, 158, 169, 170, 201, 205, 210 and 219. Baseman discusses five different general optimization techniques. The table (shown below) that summarizes the five techniques should make it obvious to anyone of average skill in the art that all of the methods described by Baseman teach away from claimed method for optimizing value, risk and combinations thereof.

	Type	Optimize What?	Details
Baseman #1	Global	Linear Risk, Linear Profit (& Value)	Linear Program (LP) and Mixed Integer Program (MIP) with single objective function
Baseman #2	Global	Linear Risks, Linear Profit (& Value) and Other Linear Goals	LP and MIP with multiple objective functions (see Baseman C14, L45; C15, L33; C20, L31; C21, L8 and C22, L18)
Baseman #3	Global	Market Value and Market Risk	Mean Variance (implicit in claimed use of Portfolio Management – see Baseman claim #1)
Baseman #4	Global	Profit and Risk	Estimate the loss in profitability associated with designing a supply chain to reduce risk. Keep making changes as long as this "opportunity cost" is less than the cost of obtaining a similar position with traditional financial risk management techniques.
Baseman #5	Global	Profit and Risk	Network design software. As noted in the Bradley, Hax and Magnanti reference this software comprises a linear program.

6) Baseman teaches away from the analysis and optimization of measured risks that consist of expected reductions in value as described in claims 167, 180, 201, 204, 214, 217 and 218. The best mode taught by Baseman (see claim 1) relies on the use of Portfolio Management where risk is defined as variance. Put another way, a person of ordinary skill in the art following the teachings of Baseman would be led to design a supply chain using a general optimization analysis that considered only linear measures and the variance in said measures before stress testing the resulting design using a plurality of scenarios.

7. Baseman teaches away from optimizing value and/or risk by completing one or more risk transfer transactions as described in claims 160, 162, 172, 174, 206, 212 and 213 by teaching a reliance on supply chain to design to minimize the need for risk transfer.

8. Sandretto teaches away from using scenario simulation to measure risk by element of value and/or external factor as described in claims 163, 164, 175, 177, 207, 208, 211 and 215 by teaching that the risk of assets with known cash flows in a portfolio can be identified by iterating discount rates for each asset until the resulting sum of discounted cash flow values equals a known portfolio value.

9) Sandretto teaches away from the use of scenario simulations for analyzing tradeoffs and for measuring risk as described in claims 157, 158, 169, 170, 201, 205, 210 and 219. Sandretto teaches away from the claimed invention by teaching reliance on risk return asset pricing models such as CAPM and APT (Sandretto C9, L1) to value the assets. Sandretto teaches that the risk of assets with known cash flows in a portfolio can be identified by iterating discount rates for each asset until the resulting sum of discounted cash flow values equals a known portfolio value. Put another way, someone of average skill in the art who followed Sandretto's teachings would measure risk by iterating discount rates until the total discounted value of the known cash flows from all the assets in a portfolio matched a known portfolio value. The resulting discount rates would be measures of risk. Furthermore, the use of a risk return asset pricing model implicitly teaches that the tradeoff between risk and return is already known and that a simulation is not required to identify risk. Put another way, a person of ordinary skill in the art who followed the teachings of Sandretto would not use simulation for risk measurement and/or for identifying the tradeoffs between value and risk.

Sandretto does teach the use of the known cash flows and the iterated risk measures to simulate returns from period to period changes in asset NPV. Those of average skill in the art will recognize that this approach also teaches away from the claimed invention which teaches that the cash flows associated with each element of value must be learned from the data, that risk is scenario specific and that risk is identified using simulation.

10) Sandretto teaches away from scenario optimization as described in claims 157, 158, 169, 170, 201, 205, 210 and 219 for the same reasons discussed above. The use of the cited risk return asset pricing models implicitly teaches that scenarios do not have any impact on value. This is undoubtedly why Sandretto does not mention the word "scenario" a single time. As

stated previously, a person of ordinary skill in the art who followed the teachings of Sandretto would not use scenarios for risk analyses or optimization.

11) Sandretto teaches away from the analysis and optimization of real option value and contingent liability risk described in claims: 157, 163, 165, 167, 168, 169, 171, 175, 176, 178, 180, 203, 204, 208, 211, 214 and 217. The use of the cited risk return asset pricing models implicitly teaches that real options do not have any impact on value.

Sandretto does teach that financial options to buy bonds have value that can be analyzed in a manner that is well known.

12) Sandretto teaches away from the analysis and optimization of measured risks that consists of expected reductions in value as described in claims 167, 180, 201, 204, 214, 217 and 218. The use of the cited risk return asset pricing models (CAPM and APT) implicitly teaches that variance is the measure of risk. 157, 163, 165, 167, 168, 169, 171, 175, 176, 178, 180, 203, 204, 208, 211, 214 and 217

13. Packwood teaches away from measuring risk, from using scenario simulation to measure risk, from using scenario simulation to measure risk by element of value and/or external factor, from measuring contingent liabilities and from measuring event risks as described in claims 157, 158, 163, 164, 165, 167, 168, 169, 170, 171, 175, 176, 177, 178, 180, 201, 203, 204, 205, 207, 208, 210, 211, 215, 217 and 219 by teaching the identification of risk factors in the business and the identification of ranges of acceptable and unacceptable values for the factors. Packwood also teaches that a business is evaluated by measuring the actual values for each factor found in the business, comparing the actual values to the user-defined acceptable value ranges for each factor and creating a report identifying unacceptable valued risk factors and their immediacy value to the business (see Packwood abstract).

Many more examples could be cited. It should also be noted that the author of the papers mailed February 1, 2012 has also failed to clearly articulate the reason(s) why the claimed invention would have been obvious when the primary references teach away from most aspects of the claimed invention and when almost all of the remaining limitations are not taught or suggested by any of the cited references.

35 U.S.C. §112 objections

In the papers mailed February 1, 2012 claim 209, claim 210, claim 211, claim 212, claim 213, claim 214, claim 215, claim 216, claim 217, claim 218 and claim 219 are objected to under 35 U.S.C. §112 first paragraph because the terms "physically exist" and "learn from the data" are not in the original specification. The Assignee traverses all §112 first paragraph rejections in a number of ways, First, by noting that the claim rejections are not in compliance with the Administrative Procedures Act and are therefore moot. Second, by noting there is no statutory basis for the claim rejections for the reasons noted by Link (as amended). Third, by noting that the papers have failed to establish a prima facie case of a lack of written description. In particular, a preponderance of evidence is required to establish a lack of enablement. It is well known that *the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.*" 37 CFR 1.75(d)(1). 415 F.3d at 1316, 75 USPQ2d at 1329 (*underline added*). With respect to claim 210, claim 211, claim 212, claim 213, claim 214, claim 215, claim 216, claim 217, claim 218 and claim 219, the original specification provides clear and substantial support to those of average or ordinary skill in the art for the use of the term "learning from the data". Among other things the original specification teaches:

1. Using a plurality of predictive models and causal models to learn which portion of the prepared data to use as value drivers for modeling an impact of each of one or more elements of value;
2. Using a plurality of predictive models and causal models to learn which portion of the prepared data to use as factor value drivers for modeling an impact each of one or more external factors;
3. Learning if a clustering of the input data improves an accuracy of one or more component of value models;
4. Learning a relative contribution of each of the elements of value to a value of each of one or more components of value,
5. Learning a relative contribution of each of the elements of value to the enterprise value,
6. Optionally learning a relative contribution of each of the elements of value to a value of one or more real options;
7. Learning a relative contribution of each of the external factors to the value of each of the components of value,
8. Learning a relative contribution of each of the external factors to the enterprise value; and
9. Learning if the enterprise value comprises a market sentiment value.

Of note is the fact that the BPAI has already determined that the specification supports the use of the term "learning from the data" in an independent claim (see BPAI decision dated March 16, 2011).

With respect to claim 209 and the statement that "the enterprise physically exists" the Assignee notes that the rejection is improper as the author has not identified any need for any experimentation that would result from limiting the application of the novel invention to organizations that physically exist. Furthermore, the author of the papers mailed February 1, 2012 has not identified any confusion about the term and has not asserted that the fact the enterprises physically exist is not well known in the art. As noted in MPEP 2164.08 *the Federal Circuit has repeatedly held that "the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation'."* In *re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Nevertheless, not everything necessary to practice the invention need be disclosed. In fact, what is well-known is best omitted. In *re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). All that is necessary is that one skilled in the art be able to practice the claimed invention, given the level of knowledge and skill in the art. Along these same lines MPEP 2163 notes that the absence of definitions or details for well-established terms or procedures should not be the basis of a rejection under 35 U.S.C. 112, para. 1, for lack of adequate written description.

In the papers mailed February 1, 2012 claim 159 was objected to under 35 U.S.C. §112 second paragraph. However, the requested correction was already submitted in the last amendment/reply.

Material from co-pending applications

Under the provisions of MPEP § 2001.06(b), the author of the set of papers mailed February 1, 2012 is hereby advised of information obtained from co-pending U.S. Patent Application(s) which may be "material to patentability" of the instant application (see *Armour & Co. v. Swift & Co.*, 466 F.2d 767, 779, 175 USPQ 70, 79 7th Cir. 1972).

The subject matter contained in the material incorporated in the patent applications listed below may be deemed to relate to the present application, and thus may be felt (with or without reasonable justification) to be material to the prosecution of the instant application. On May 5, 2007 the Assignee provided a list of co-pending applications. The table below lists the co-pending applications that have been filed since May 5, 2007.

<u>Application No.</u>	<u>Title – of co-pending application</u>	<u>Filing Date</u>
12/271,846	An organization activity management system	11/15/2008
12/684,954	An extended management system	1/10/2010
13/517,631	An extended management system	6/14/2012
13/548,095	An automated risk transfer system	7/12/2012
13/548,104	Market value matrix	7/16/2012
13/551,578	An extended management system	7/18/2012
13/555,047	A trading system	7/29/2012
13/557,836	Market value matrix	7/29/2012

- ☐ Copies of cited U.S. patent application(s) (office actions, specification, claims, and the drawings) or copies of the portion(s) of the application(s) which caused it(them) to be cited, including any claims directed to such portion(s) are attached hereto.
- ☒ Copies of the cited U.S. Patent Application(s) (office actions, specification, claims, and the drawings) and U.S. Patents are available on the U.S.P.T.O.'s Image File Wrapper. Therefore copies thereof need not be attached.
- ☐ The materials in the envelope are considered trade secrets and are being submitted for consideration under MPEP § 724.

Any and all of the listed co-pending applications are not to be construed as prior art. By bringing the above-listed information to the attention of the author, the Assignee does NOT waive any confidentiality concerning the above-listed co-pending application(s) or this application. See MPEP §101. Furthermore, if said application(s) should not mature into patents, such application(s) should be preserved in secrecy under the provisions of 35 U.S.C. § 122 and 37 C.F.R. § 1.14.

Statement Under 37 CFR 1.111

Amendments to the claims are included in this amendment/reply. 37 CFR 1.111 states in part that: *In amending in response to a rejection of claims in an application or patent undergoing reexamination, the Assignee or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections.* The Assignee notes that this requirement is not relevant to the instant application because as detailed above no objections or references that need to be avoided have been identified during the prosecution of this application (or any application in the

portfolio). The claims were amended was to correct clerical errors and add relevant limitations in order to put the application in a final form for allowance and issue.

Reservation of rights

The Assignee hereby explicitly reserves the right to present the previously modified and/or canceled claims for re-examination in their original format. The cancellation or modification of pending claims to put the instant application in a final form for allowance and issue should not to be construed as a surrender of subject matters covered by the original claims before their cancellation or modification.

Conclusion

Taken as a whole the papers mailed February 1, 2012 appear to provide evidence that that instant application has not been examined in accordance with the relevant statutes, rules and precedents. The pending claims are of a form and scope for allowance. Prompt notification thereof is respectfully requested.

Respectfully submitted,

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Date: August 1, 2012